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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/570,227

09/20/2006

Fang-Fang Yin

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EXAMINER

ARTMAN, THOMAS R

ART UNIT

PAPER NUMBER

2882

MAIL DATE

DELIVERY MODE

11/16/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/570,227	Applicant(s) YIN ET AL.	
	Examiner THOMAS R. ARTMAN	Art Unit 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Lemelson (US 5,995,866).

Regarding claims 1, 3, 8 and 10, Lemelson discloses a fuzzy inference system and method of modulating radiation treatment, including:

a) an imaging device for creating and storing image data of relevant tissue and organ parts (col.8, line 62 through col.9, line 15),

b) single input means 17 for inputting single imaging data (col.2, lines 55-59 and col.9, lines 16-31),

c) inference means operatively connected to the input means for analyzing the imaging data and determining a radiation treatment target from a non-treatment target (col.2, lines 59-65 and col.9, lines 31-38) and determining strength of radiation treatment (col.3, lines 1-5; col.9, lines 39-41),

d) output means for modulating radiation treatment pursuant to the analysis from the inference means (col.2, lines 65-66), and

e) modulating radiation treatment pursuant to data obtained from the fuzzy inference system (col.2, line 65 through col.3, line 5).

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Lemelson does not specifically use the specific terminology of "fuzzifier" and "defuzzifier." It is known to the skilled artisan, however, that these terms simply refer to the input and output of a fuzzy inference system. Therefore, since Lemelson has a fuzzy inference system that receives input and provides output, then Lemelson anticipates these limitations.

With respect to claims 2, 4, 5, 9 and 11, the system is computer based and performs the modulation automatically (col.8, line 62 through col.9, line 48).

With respect to claims 6 and 7, Lemelson further discloses that the modulating step includes increasing or decreasing the amount of radiation at a specified location (applies select amounts of radiation beams, col.3, lines 1-5; control/direct radiation beam; col.9, lines 39-41).

Response to Arguments

Applicant's arguments have been fully considered but they are not persuasive. Applicants argue 1) features that are not claimed, and 2) that Lemelson does not use the fuzzy inference system for modulating radiation treatment.

Regarding the first point, the claims do not require a particular number or amount of images, values or variables that are input into the fuzzifier. Claim 1 merely requires "single input fuzzifier means for inputting singular imaging data." This limitation is broad. Lemelson inputs imaging data into the fuzzy inference algorithm for modulating radiation treatment as outlined in the above rejection and as explained in previous Office actions of record. The claims do not limit the amount of input to a "single input value." In fact, "singular imaging data"

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comprises many values that constitute one or more images. The term "data" is a plural word, being the plural of the word "datum."

Regarding the second point, the examiner respectfully disagrees. Lemelson discloses, in col.2, line 59, through col.3, line 5, that image data representing the treatment target and non-treatment targets is analyzed by a fuzzy logic computer algorithm, and the output of the algorithm is "coded control signals" which are then "employed to control the operations of one or more controls...for controlling and operating a treatment system, such as one that applies select amounts of one or more...radiation beams operable to...destroy cancer." Therefore, the fuzzy logic provides the signals that contain the direct instructions for modulating the treatment.

For at least these reasons, Applicants' arguments are not persuasive, and the rejections have been maintained above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Busch (US 6,167,294) teaches the practice of using fuzzy logic to perform benefit/risk evaluations for modulated radiation treatment plans.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THOMAS R. ARTMAN whose telephone number is (571)272-2485. The examiner can normally be reached on 9am - 5:30pm Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TRA/
Examiner, Art Unit 2882

Thomas R Artman
Examiner
Art Unit 2882

/Edward J Glick/
Supervisory Patent Examiner, Art Unit 2882